

WILDLIFE RESEARCH UPDATE

Research, Analysis, and Inventory Section - Wildlife Division



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Canada Goose Harvest Dynamics in the Midwest

by Matthew Garrick, Waterfowl Program Manager

Having a better understanding of the interaction of harvest success and hunter satisfaction can better inform management decisions. As Canada geese are hunted across their range, with differing regulations state to state, there is a unique opportunity to investigate hunter success and satisfaction across a range of bag-limit options. We compared bag-limit achievement rates, harvest contribution by hunter groups (ranked hunters on annual harvest and split into 10 similar sized groups), and compared satisfaction with bag-limits for hunters in Kansas (daily bag of 6), Nebraska (daily bag of 5), and South Dakota (daily bag of 8).

Bag-limits were achieved in 9% of successful hunts in Kansas (at least one goose shot), 15% of successful hunts in Nebraska, and 1% of successful hunts in South Dakota (Figure 1). The top 10% of hunters made up ~38% of the total harvest of Canada geese, where as the majority of hunters (~60%) harvest 1-7 geese a year, contributing to ~25% of the annual harvest (Figure 2).

Canada Goose Continued...

Surprisingly, despite the lack of hunters reaching the higher bag-limits in Kansas in South Dakota, hunters are similarly satisfied with the bag-limits in the three states (Figure 3).

It appears higher bag-limits are rarely achieved, which has implications for controlling populations. Unlike duck hunters, satisfaction does not seem to be linked to bag-limit achievement rates, and continues to be poorly understood. Future changes to goose bag-limits should take these factors into consideration.

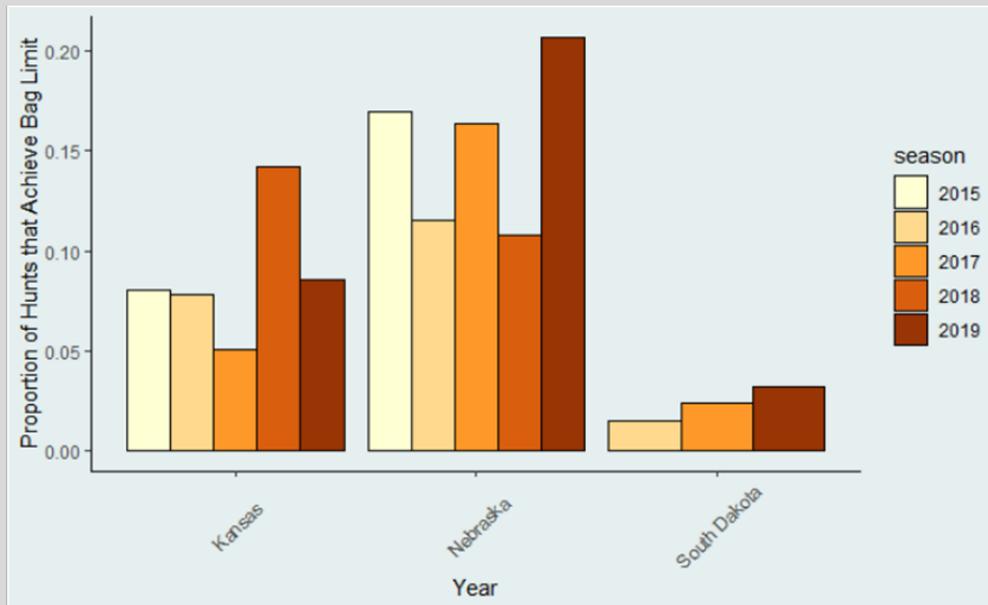


Figure 1. Proportion of hunts that achieved the daily bag limit of Canada geese in Kansas (6), Nebraska (5), and South Dakota (8) from 2015-2019.

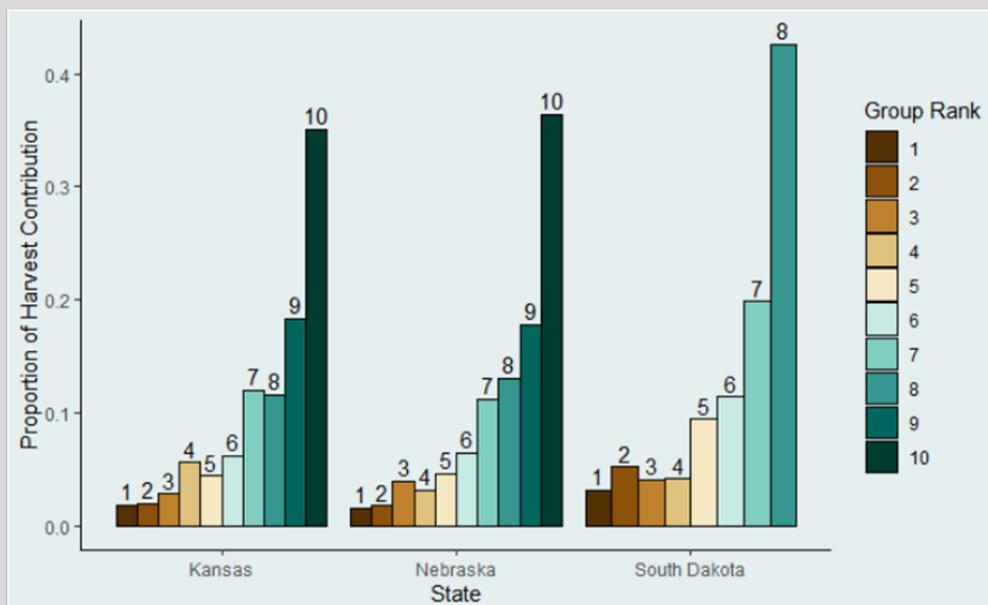


Figure 2. Contribution to total Canada goose harvest in Kansas, Nebraska, and South Dakota by each ranked hunter group 2015-2019. Group 1 had the lowest annual harvest and group 10 had the highest.

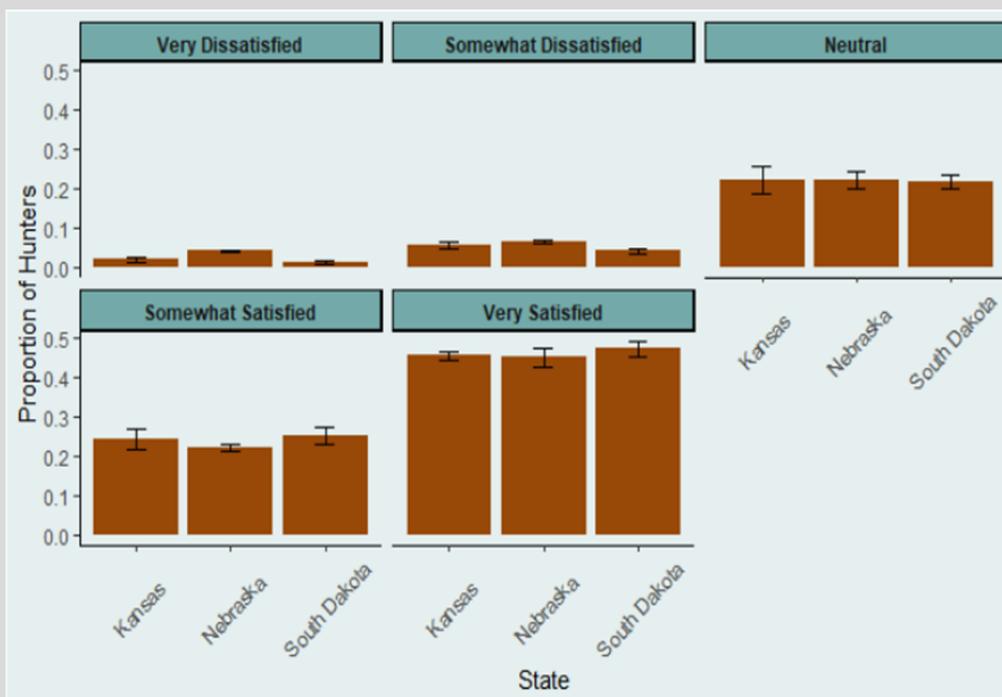


Figure 3. Proportion of hunters in each satisfaction category regarding the daily bag-limit in Kansas, Nebraska, and South Dakota 2018-2020.

Body of proof: how WMA habitat fuels songbird migration

by Stephen Brenner and Joel Jorgensen, Nongame Bird Program

Migration is a critically important event in the lives of many avian species. This period accounts for over a quarter of the annual cycle for some birds and is extremely risky as individual birds travel long distances through unfamiliar areas. Consequently, many species experience higher rates of mortality compared to the breeding or wintering periods. Some of the smallest migratory species in North America also can travel the longest distances, moving from breeding areas in the boreal forests of Canada to wintering grounds in Central and South America. These and other challenges make migratory stopover areas extremely important to the survival and lifecycles of hundreds of songbird species in North America. There has been little focus on passerine migration in the Great Plains as the region lies on the edge of most Neotropical migratory pathways, land area is not restricted as it can be on coastal sites, and the region has less available early successional habitat, which has been shown to be important to migrants in the eastern US. However, much of the land in the eastern Great Plains and eastern Nebraska is row crop agriculture, which is essentially unsuitable for stopover, and early successional habitat is naturally limited. Thus, there is a need to identify suitable stopover sites and habitat features in this region for many migratory species.

Songbird Migration Continued...

Beginning in the fall of 2020, the Nongame Bird Program studied migratory passerine body condition at Conestoga Wildlife Management Area (WMA) in eastern Nebraska using standard mist-netting and bird banding techniques. Our primary objective for this study was to determine whether a WMA in eastern Nebraska provides suitable stopover habitat for migratory songbirds. One of the best indicators of migratory fitness is the amount of fat that birds can accumulate while on stopover, particularly before undertaking large migratory movements at night. By comparing evening wind direction, capture rates and individual body condition through fat scores, we found supporting evidence that long-distance migrants improved their body condition while on stopover in Nebraska during fall migration. We found that the average fat scores were significantly higher on migrants that we caught while on stopover (captured on mornings following evening headwinds when birds were unlikely to migrate) compared to the average fat scores of migrants that had presumably arrived at Conestoga the morning of capture (captured following evening tailwinds which are favorable for migration). We also captured a high number and diversity of birds given our relatively limited spatial effort (Fig 1-2), totaling 39 species, including three Legacy Species of Greatest Conservation Need (Fig 3).

Conestoga WMA, like other WMAs in this region, feature areas with early successional habitat and variable habitat structure that includes a mix of grasses, forbs, and shrubs. This is not by accident as these sites are managed to produce this type of habitat. Area Manager Travis Kopf noted that “the grassland at Conestoga is managed by utilizing tools, such as prescribed burning, to enhance plant diversity, which in turn, benefits a wide range of species that reside in those habitats.”. Given the high number of species we were able to capture and evidence of improved body condition, even small areas featuring diverse habitat structure in agricultural and urban landscapes in eastern Nebraska likely serve as effective stopover sites for migratory songbirds in the fall.



Figure 1. Adult female Mourning warbler, one of several different warbler species banded at Conestoga WMA.



Figure 2. Adult male Common Yellowthroat, our 2nd most abundant species banded at Conestoga WMA.



Figure 3. Nebraska Legacy Project Species in Greatest Conservation need captured and banded at Conestoga WMA during the project. Left: Black-billed Cuckoo (Tier 1). Right: Savannah Sparrow (top) and Swamp Sparrow (bottom, Tier 2)

Managing Changing Ecosystems

by *Caroline Jezierski, Natural Heritage Program Manager*

In 2011, the Governor of Nebraska was Dave Heineman, *The Hunger Games* was all the rage, it was the ninth warmest year on record, and the second edition of The Nebraska Natural Legacy Project State Wildlife Action Plan (Legacy Project) was completed. Within Legacy Project, is a vision for how to conserve Nebraska's rarest species and natural communities while perpetuating the continued existence of more common species, as well as conservation actions to address stresses affecting species and habitats. One stressor identified is climate change. In the past decade, climate change has become more prevalent in the media and politics, more extensively studied, and its effects more evident around the world. 2011 is no longer in the top ten warmest years on record (1880-2020); eight of the top ten warmest years have occurred since 2013. There has been a transition from is climate change real to how we can adapt in the face of climate change.

Climate change is sprinkled throughout the Legacy Project, embedded in discussions about habitat fragmentation, land conservation, monitoring, and more. Most activities related to natural resource management could and should be viewed through the lens of climate change and adaptation.

Given that climate change is so politically charged, another way for resource managers to achieve management objectives that account for adaption to climate change would be helpful, especially when working on private lands. A collaboration of federal agency scientists has recently developed the Resist-Accept-Direct (RAD) Framework to help resource managers make informed strategies for responding to ecological changes. Although the RAD Framework was developed to be used with changes occurring from climate change, it can be used for ecosystem change stemming from other stressors. The RAD Framework has a triad of approaches for making management decisions. To illustrate the approaches, let's consider red cedar invasion of grasslands. A manager could Resist the invasion by working to maintain or restore the grassland. Alternatively, a manager could Accept the invasion and allow the transition of the grassland to a red cedar thicket. Lastly, a manager could Direct the change in the grassland to an ecosystem that would be preferred to a red cedar thicket and would be more likely to survive in future conditions than a grassland.

An update to the Voluntary Guidance for States to Incorporate Climate Change into State Wildlife Action Plans & Other Management Plans (2009) is currently underway and a revision to the Legacy Project will be completed by 2025. The latest information on climate adaptation and emerging frameworks to facilitate management decisions that include adaptation to climate change will be incorporated into the updated documents. Ecosystems are changing, just like teen's infatuation with the latest fad, and having a strategy to guide management to a desired state is pivotal to the success of managers today and in the future.



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